WEATHER, FORECASTS, AND WARNINGS.

By EDWARD H. BOWIE, District Forecaster.

Alaska.—Pressure averaged below normal, especially over northern districts, where the negative departures were from 0.14 to 0.16 inch. Lows occurred about the 1st, 4th, 7th, 9th–10th, 13th, 17th–18th, 20th, 23d, 27th–28th, and 30th; and highs about the 2d–3d, 5th, 12th, 19th, 21st–22d, and 24th–25th.

Honolulu.—Pressure averaged slightly above the normal. Lows occurred on the 3d–4th, 9th–10th, 11th–12th, 19th–21st, and 23d–24th; and highs on the 2d, 6th, 16th–17th, 27th, and last day of the month.

Azores.—Pressure averaged below normal for the month. Lows occurred on the 7th–8th, 15th–16th, 20th, 21st–22d, and 29th–30th; and highs on the 1st, 4th, 10th, and 27th.

Iceland.—Pressure averaged decidedly above normal, there being only three or four days when it was below. Relatively low pressure occurred on the 4th, 13th, 16th, 19th, 21st–22d, 23d, 27th, and last of the month; and highs on the 2d, 6th–11th, 14th–15th, 17th–18th, 20th, 25th, and 28th–29th.

Siberia.—Pressure averaged above normal for the month, being especially so over northern districts. Lows occurred about the 5th–6th, 10th, 15th–16th, 24th, and 29th; and highs about the 3d–4th, 8th, 12th, 18th–19th, 27th, and last day of the month.

Miscellaneous.—A typhoon, the worst in half a century, visited Japan on the 22d, causing heavy loss of life, and property damage estimated at $20,000,000. At Nagoya a tidal wave demolished the harbor and sank three steamers.

On the 29th of last month (August) a typhoon, accompanied by a tidal wave, devastated the China coast, causing enormous damage and disastrous floods.

At the beginning of the month pressure in the United States was above normal over the Northeast, the east Gulf and south Atlantic States, and on the north Pacific coast, while relatively low pressure prevailed over Manitoba, and there was an unsettled condition over the Lake region. Temperatures were above normal throughout the country, except over the northern Plateau and the northern and middle Pacific States. They were decidedly above normal over the Great Central Valleys.

The following weekly forecast was issued Sunday, September 1:

Warm weather will prevail during the next two or three days over the Middle West and during the greater part of the coming week in the Eastern and Southern States, while during the next several days temperatures will be near or below normal in the Northwestern States, the Rocky Mountain and Plateau regions and the Pacific States. An extensive area of low barometric pressure will prevail Monday and Tuesday over the Northwestern States, and it will cause showers in that region and in the Northern States from Minnesota eastward during the next several days. This disturbance will probably move eastward to the Mississippi Valley by Wednesday and prevail over the Eastern States the latter part of the week; during its movement eastward it will be attended by general showers and thunderstorms and be followed by a change to considerably cooler weather, which will make its appearance in the Northwest by Wednesday. There are no indications at the present time of a disturbance in the West Indies.

Conditions remained unsettled over the Middle Atlantic coast from the 1st to 3d and showers occurred over northern districts from the Mississippi Valley eastward, being heavy over Pennsylvania.

A high of slight intensity passed from the Plains States to a position off the New England coast from the 2d to the 5th.

On the morning of the 2d a low pressure area appeared on the north Pacific coast, passed to the Plains States by the 5th and thence northward into Canada during the 6th and 7th. This storm was probably identical with the storm that was central over the Canadian Maritime Provinces on the morning of the 9th. It caused precipitation over northern districts from the Rocky Mountains westward, the first snow of the season being reported from Nevada. Attending its passage high temperatures occurred in the Great Central Valleys.

Following the passage of this low northward on the 5th, pressure increased over the Pacific coast and Plateau districts and heavy to killing frosts were reported on the morning of the 5th in Nevada, southeastern Idaho, and southwestern Utah, and on the 6th in portions of Montana and Wyoming. The high which was of slight intensity passed eastward over a northern course to the New England coast by the 10th.

The following weekly forecast was issued Sunday, September 8:

Moderately warm weather will prevail the coming week in the Southern States, while over the Middle Atlantic and New England States, the Lake region, the Great Central Valleys, the Plains States, and the Rocky Mountain and Plateau regions temperatures will average near the normal for the season. The warm weather that now prevails in the Great Central Valleys will give way to moderate temperature Tuesday and Wednesday. The weather during the week will be generally fair, but fairly well distributed showers are probable in the Northern and Eastern States, attending the eastward movement of an area of low barometer which will prevail the first part of the week in the Northwest, the middle of the week over the North Central States, and the latter part of the week in the East. There are no indications at the present time of a disturbance in the West Indies.

For the week ending the 9th temperatures were above normal east of the Rocky Mountains and below to the westward. Negative departures of from 12° to 15° were reported over the western Plateau, and positive departures of the same magnitude over the upper Mississippi Valley. No well developed rain area crossed the country during the week, and precipitation was generally deficient, except in a few localities. Precipitation was heavy in portions of Florida.

A low pressure area over Alberta on the morning of the 7th passed to the Plains States during the next 36 hours. By the morning of the 10th it was over Ontario and on the following morning over New Brunswick with increased intensity. It caused precipitation in the north Pacific States from the 5th to 8th, but elsewhere in its course across the country it caused only light local showers. The rains in northern and central California on the 5th and 6th were the first general ones of the season. Regarding the forecasts issued for them, the Commercial News of San Francisco, Cal., under date of September 10, says:

To the excellent service of the Weather Bureau credit must be given for the saving of exposed fruit, timely warnings by telephone to fruit-growing sections, giving growers ample time to protect the r fruits on the trays.

This storm gave high temperatures in portions of the upper Mississippi Valley and caused a tornado in Ramsey County, N. Dak., on the 9th. A hail storm on the 12th caused heavy damage to the Connecticut tobacco crop.

Following this storm the most important high of the month passed inland over the north Pacific coast during the 9th–10th, and on the 12th was over the southern Plains States with decreased intensity. It advanced thence eastward to a position off the New England coast by the morning of the 14th.

From the 6th to 13th conditions were unsettled off the east Gulf coast and reports from land stations as well as those from vessels by wireless indicated the existence of a disturbance of slight intensity in that region. On the afternoon of the 12th, special observations indicated that the storm was increasing in intensity, and advices and warnings were issued to ports on the Gulf in the following message:

Hoist northeast storm warnings New Orleans to Pensacola 2 p. m. Disturbance central southeast of mouth of Mississippi River, apparently moving northwest. Increasing north to east winds this afternoon and to-night.

On the 13th the following advisory message was disseminated:

Disturbance southwest of Pensacola will probably move north-northwest and pass inland late to-night or Saturday, attended by strong shifting winds on the northwestern Florida, and the Alabama, Mississippi, and eastern Louisiana coasts.

By the morning of the 14th the storm had passed inland with decreased intensity and was central over southern Mississippi. Thence it passed up the Ohio Valley, causing showers and thunderstorms over the lower and middle Mississippi Valley and over northern and central districts east of the Mississippi River. On the 16th it was off the middle New England coast, with slightly increased intensity. It caused high winds of local character over portions of the middle Atlantic States, and on the afternoon of the 15th a tornado was reported in Onondaga County, N. Y.

The following remarks regarding this storm are taken from the report of the official in charge at Pensacola:

On the night of the 11th shipping interests were advised of a disturbance south of the Mississippi coast and to exercise caution until further advices. On the morning of the 12th small craft warnings were ordered displayed again, and were ordered changed to northeast storm warnings at 12.37 p. m., with the information that the disturbance was central southeast of the mouth of the Mississippi River, apparently moving northwest, and increasing north to east winds could be expected during the afternoon and night. This information was given general distribution. At 8.48 a. m., on Friday the 13th, an advisory message was received, stating: "Disturbance central southwest of Pensacola will probably move north-northwest and pass inland late to-night or Saturday, attended by strong shifting winds on northwest Florida, and the Alabama, Mississippi, and east Louisiana coasts." This was immediately sent out by messenger and telephone, reaching all shipping interests by 10 a. m., the official in charge adding remarks that the strongest winds would be from the southeast and personally warned all interests affected to take extreme precautions. On the strength of this information the fish companies moved all smacks (about 23) across the bay to a sheltered anchorage; timber was towed to safer places and extra dogs and chains put on. Warnings were changed to southwest at 10 a. m. of the 14th.

On the 12th pressure was low and fell from 29.85 to 29.71 inches, the weather was generally cloudy with strato-cumulus clouds from the northeast and light scattered showers after 11 a. m. The winds were from north to northeast, increasing from 11 to 23 miles per hour; a squall of 33 miles from the north occurred at 6.33 p. m.

On the 13th pressure remained between 29.66 and 29.70 inches; with generally cloudy weather. Light rains occurred in the morning and continuous rain after 12.20 p. m., amounting to 0.75 inch. Winds gradually increased, northeast prevailing to 3 p. m., east from 3 p. m. to 9 p. m., then southeast past midnight. Easterly squalls began between 9 and 10 a. m., increasing in severity after 3 p. m., and passing the 50-mile rate in all hours after 7 p. m. Fifty-three miles from the southeast was registered at 7.18 p. m., 50 southeast at 8.14 p. m., 59 southeast at 9.21 p. m., with an extreme of 62 miles; 58 southeast at 10.57 p. m., and 58 southeast at 11.56 p. m. Temperature fluctuated between 74° and 80°. There was a moderate but increasing southeast surf with normal tide at noon; at 2 p. m. the tide was rising slowly and the surf was high; at 7 p. m. the tide was 1 foot above normal.

On the 14th extremely severe southeast squalls continued to 7 a. m., reaching 68 miles southeast at 12.24 a. m., and 74 southeast at 2 a. m., with an extreme velocity of 86 miles at 1.58 a. m. The next squall, at 2.26 a. m., carried away the anemometer, which had worked loose on its stand. The anemometer record was started again at 8.26 a. m. It was the general opinion that the squall at 2 a. m. was the hardest, but the severe squalls of about 60 miles continued to 6 a. m., south winds prevailing after 3 a. m. Thunder was heard 1.50 a. m. to 2.20 a. m., and lightning occurred from 2 a. m. to 3 a. m. Southerly squalls continued during the passage of a thunderstorm that came from the southwest. Pressure fell to 29.62 inches at 2.30 a. m., then began rising rapidly, reaching 30 inches at 9 p. m. Rains ceased at 4 p. m., amounting to 0.75 inch for the day. The sky cleared between 7.30 and 8.30 p. m. The tide during the night of the 13th–14th rose 2 feet above normal high water, the waves were about 4 feet high, and the wind carried the spray over the American National Bank Building.

DAMAGE.

Beginning at Pensacola entrance and making a circuit of Pensacola Bay, the following damage by the storm was observed: Fishing smack *Two Boys* ashore. The tracks of the Pensacola Electric Co. were undermined for a distance of about 1,200 feet immediately south of Bayou Grande; also about 1,000 feet on Maine Street; their tracks were also inundated by high tide at the corner of Intendencia Street and Ninth Avenue. Private wharves along the bay shore from Fort Barrancas to Baylen Street were generally carried away, together with numerous small houses on the wharves which were used either as houses or for fishermen's equipment. The entire beach was strewn with timber and about 20 barges went ashore; only a few barges remained at anchor and retained their cargoes of lumber. The British S. S. *Meltonian*, moored along the east side of Perdido Wharf, broke away and went aground on Rat Island. Her local agents were notified at 10 a. m. of the 13th of expected conditions, and were phoned again in the afternoon, calling attention to her dangerous position. She could have weathered the storm without mishap at anchor in the bay. The fish companies were advised to take their fishing smacks across the bay in shelter of the peninsula. This advice they heeded. There were in all about 23 fishing smacks, valued at $7,000 each. The tug *Brittania* also took the precaution to anchor across the bay after being advised that severe southeast squalls were expected during the night. There were several coal barges, steamers, and tugs moored along the east side of Palafox Wharf where two coal barges went adrift. One of them damaged the steamer *Edna C*, the quartermaster's steam yacht *Page*, and rammed and sank the revenue cutter *Penrose*. At Jefferson Street Wharf a house-lighter sank with a cargo of naval stores. Traffic over the L. & N. R. R. was suspended for about 18 hours on account of the damage to the bridge by being rammed with rafts of timber. The west end of the roof of Monarch Pavilion on Santa Rosa Island was blown off and a portion of the southeast corner of the roof of the Gulf Beacon Inn was torn off by the gales. The British S. S. *Conniston* went ashore about 75 miles east of Pensacola. The fishing smack *Isabelle* went ashore about 12 miles west of Pensacola entrance. The owners of the coastwise steamer *Tarpon* were advised on the 13th to hold the *Tarpon* in St. Andrews Bay. This they did for 24 hours and she avoided the storm. The damage by wind throughout the city was slight. The Western Union lines went down during the night and were out of order until 1 p. m. of the 14th. Electric light circuits were cut off about 1 a. m. of the 14th. Telephone lines to the navy yard were blown down. The barkentine *Golden Rod* put into port on the afternoon of the 14th with five sails missing and two yardarms broken. The captain stated that he encountered the storm off Cape San Blas on the night of the 12th. The squalls grew more frequent and severe and at night he was driven along before them under bare poles, passing about 60 miles south of Pensacola at 11 p. m., when his barometer fell to 29 inches. He said the squalls were terrific and the ship remained over on her beam ends during the height of the storm. The British schooner *Hieronymus* weathered the storm at anchor off Mobile entrance. The captain said that the seas were the highest he had ever seen. The worst of the storm occurred about 2.40 a. m.

The estimated damage by tide and waves in Pensacola is $23,500, and by winds $1,500.

The following is an extract from the report of the official in charge at Mobile, Ala.:

The storm that passed inland from the Gulf on the night of September 13th–14th, with its center not over 20 miles west of Mobile, was much less destructive than several other storms recorded in the meteorological history of this city. The short duration of the high winds, the comparatively low accompanying tides, and the absence of heavy rainfall for an extended period tended to lessen its disastrous effects.

No premonitory signs of the approaching disturbance were observed, except a somewhat red sky near the western horizon at the time of

sunset, and an unusually rapid movement of the lower clouds at about 9 p. m. The tides in Mobile River had been abnormally low, but, during the east and southeast winds, rose rapidly and reached the level of the top of the lowest wharves at about 4.30 a. m. A maximum rate of 32 miles an hour was attained at 2.50 a. m. of the 14th, and the highest velocity, 52 miles an hour, occurred at 3.50 a. m. A total rainfall of 1.30 inches fell during the storm. The barometer read 29.71 inches at 8 a. m., and 29.65 inches at 8 p. m. of the 13th. A slight rise in pressure occurred about 11 p. m., and a rapid fall began after midnight, the lowest, 29.37 inches, occurring at 3.30 a. m. The pressure remained almost stationary for about half an hour and then rose steadily until 29.65 was reached at 8 a. m. of the 14th.

The loss of property in the city of Mobile from the high wind is estimated at $8,000. A church, a very weak structure, on the corner of Delaware and Cedar Streets, was blown down, as were also some business signs and many fences. The wire systems also sustained considerable damage. The loss to vessels in the bay and river is estimated at $4,000. The larger vessels had been made fast with extra cables and many of the smaller vessels had ascended the river to a place of safety. The principal loss to shipping interests was a barge valued at $2,000, which was lost in Mobile Bay, and the steamboat *National*, which sank in shallow water about 3 miles up the river. The steamboat, which is about 100 feet in length, had been fastened with extra lines, but during the highest winds all parted except the anchor chain, and the boat swung around against submerged piling. Storm warnings were displayed from 2 p. m. of September 12 and wide publicity was given all information.

The following are editorials referring to the storm and the warnings issued in connection therewith:

The Mobile Daily Item of September 14 says:

* * * Sweeping inland from the central Gulf last night, the tropical disturbance, which has been gathering energy for several days past, spent its fury and passed on into central Mississippi, causing damage that will run into the thousands of dollars. Ample warning by the United States Weather Bureau undoubtedly prevented greater loss, as every city, town, and settlement on the coast had been advised of its coming and were prepared for it.

The Pensacola Journal of September 15th:

* * * The small damage done is due to the fact that owners of vessels had taken precautions, while the fleet of foreign vessels at anchor was small and the masters of the vessels had been given ample time to prepare for the blow which, however, was worse than anticipated earlier in the night.

The following weekly forecast was issued Sunday, September 15:

A change to much cooler weather will overspread the Middle West and the Southwest Monday and Tuesday and the Eastern States Monday night and Tuesday, and will be followed by unseasonably cool weather in these regions the greater part of the coming week. There will be frosts the first part of the week in the Rocky Mountain region and the Northwestern States and Tuesday and Wednesday in the upper Mississippi Valley and along the northern border eastward. A change to warmer weather will overspread the Northwestern States, the Rocky Mountain region, and Plains States by the middle of the week. A disturbance that is now over the Ohio Valley will advance eastward and be attended by unsettled weather and rains Monday in the Atlantic States, the region of the Great Lakes, and along the Gulf coast. The next disturbance to cross the country will appear in the far West Monday or Tuesday, cross the Great Central Valleys about Thursday, and the Eastern States near the close of the week; considerably cooler weather will follow this disturbance. There are no indications at the present time of a disturbance in the West Indies.

For the week ending the 16th, temperatures were below normal from the Plains States westward, except along the immediate Pacific coast. Departures of 12° occurred over the Rocky Mountain region. In the East, temperatures were above normal, being 6° in excess from the Ohio Valley to Texas.

Precipitation was generally above normal over the east Gulf and south Atlantic States as well as over portions of the Plains States, in the northern Rocky Mountain region and portions of the upper Mississippi Valley, elsewhere it was below normal.

A high-pressure area appeared over Saskatchewan on the morning of the 13th and advanced to Alberta by the 14th. During the next 48 hours it passed to the western Plains States and Rocky Mountain region, with decreased intensity. During the 16th, 17th, and 18th frosts occurred over portions of Montana, Colorado, North and South Dakota, and Wyoming, warnings of which were previously disseminated. The high remained stationary over the region mentioned for several days, and an offshoot from it was central on the 18th over Kansas. On the day following it was over West Virginia, and by the morning of the 21st it had joined with a high-pressure area that was central over eastern Quebec. This high remained over the Northeast with varying intensity until the 26th.

Beginning with the 16th conditions became unsettled over the Mississippi Valley and attending pressure was slightly below normal, with showers over an area from Texas to the Lake region. A center of low pressure was central on the morning of the 18th over the Michigan Peninsula and by the following morning was over eastern Quebec. A low in the meantime had advanced from Saskatchewan on the 18th to Minnesota on the 20th and pressure was low over Texas. By the morning of the 21st the northern disturbance had retrograded to North Dakota and there was a low center over the west Gulf States. By the morning of the 22d the northerly low was over western Ontario and the Gulf disturbance had moved to a position south of the Louisiana coast. On the morning of the 23d there was no trace of the northern low, while the low on the Gulf was central south of Mobile, with increased intensity, and during the next 24 hours passed to South Carolina with decreased intensity. Although pressure remained slightly below normal over the middle Atlantic coast for the next two or three days, no further developments occurred.

During the 24 hours ending at 8 a. m. of the 17th pressure rose decidedly over the north Pacific States and remained relatively high over that region until the 20th, on which date a center of high pressure had passed inland from the ocean and was central over Idaho. On the following morning the high area extended from Utah to the Texas Panhandle with decreased intensity and during the next 24 hours it almost entirely disappeared from the weather map. On the morning of the 21st frosts were reported from Colorado, Wyoming, Iowa, and Kansas, warnings of which had been previously issued.

The following weekly forecast was issued Sunday, September 22:

The general distribution of atmospheric pressure over the North American Continent and the adjacent oceans is such as to indicate cool weather the coming week in all parts of the country, except the Pacific States. Frosts are probable in the Plains States, the upper Mississippi Valley, and thence eastward along the northern border. There will be rains Monday and probably Tuesday in the Eastern and Southeastern States, followed by generally fair weather in these districts until near the close of the week. Elsewhere the weather will be generally fair during the next several days. The next disturbance of importance to cross the country will appear in the far West Thursday or Friday, and prevail over the middle West near the close of the week; this disturbance will be followed by decidedly colder weather.

There are no indications at the present time of a disturbance in the West Indies.

For the week ending the 23d, temperatures were decidedly below normal from the Rocky Mountain region eastward over the great central valleys, being from 9° to 12° below over the Plains States and eastern slope of the mountains. Along the Gulf, Atlantic, and Pacific coasts temperatures averaged slightly above normal.

Precipitation was fairly well distributed over the country from the ninety-fifth meridian eastward, while to the westward it was generally deficient. No precipitation occurred over the southern Rocky Mountain and Plateau regions nor on the Pacific coast.

Following the movement of the high previously mentioned a low appeared over British Columbia on the 22d and during the next 24 hours moved to Wyoming. On the 24th there were two centers, one over Oklahoma and the other over New Mexico. By the 25th one center was over Minnesota and the other over southern Texas. On the 25th storm warnings were issued for the upper Lakes, and winds of storm force occurred over the territory indicated in the warnings. On the 26th one center of low pressure was over Ontario, and pressure was relatively low over the Gulf. By the following morning the northern low had passed from the field of observations, while the Gulf disturbance had decreased in intensity and lost its identity. This disturbance caused precipitation quite generally throughout the country, except in the Southwest and in Pacific coast districts.

Following the passage of this low eastward, pressure rose over the northern Rocky Mountain region and on the 25th a high was central over western Nebraska. On the 26th it was over Missouri and another center of high pressure had appeared over western Montana. On the 27th the high centers were over Indiana and South Dakota, respectively. On the 28th pressures of 30.30 inches or more were reported from the middle Atlantic coast to Alberta, with high centers over New England and the Plains States, and temperatures were decidedly below normal over the districts mentioned. On the morning of the 26th frosts were reported from Kansas, Iowa, Minnesota, Wisconsin, Missouri, Oklahoma, and the Texas Panhandle, warnings of which had been previously issued. Considerable damage was reported to crops. The area over which frosts occurred spread eastward and on the mornings of the 27th and 28th they were reported over the Lake region, Indiana, Illinois, Iowa, the middle Atlantic States, and interior of New England. Warnings were previously issued in all cases.

The following weekly forecast was issued Sunday, September 29:

The coming week will be one of cool and generally fair weather over the greater part of the country east of the Rocky Mountains and during the first part of the week there will be frosts in the Rocky Mountain region, the Plains States, the upper Mississippi and Ohio Valleys, the Lake region, and the north Atlantic States. West of the Rocky Mountains temperatures will average near or above the normal. The next general disturbance to cross the country will appear in the far West Monday or Tuesday, cross the great central valleys about Wednesday or Thursday and the Eastern States Friday or Saturday. This disturbance will be preceded by a general rise in temperature and be attended by well-distributed rains. There are no indications at the present time of a disturbance in the West Indies.

For the week ending the 30th temperatures averaged above normal over the south Atlantic, east Gulf, and portions of the Pacific coast districts. Elsewhere they were below normal, especially so over the Rocky Mountain region, the Plains States, and the upper Mississippi Valley, being as much as 15° below over the western Plains States.

Precipitation was light over interior and western portions of the country, while over the Atlantic coast districts, southwestern Texas, and the western upper Lake region it was above normal. Elsewhere it was below the seasonal average.

A fall in pressure set in over the Ohio Valley on the evening of the 28th and a low was over western Pennsylvania on the morning of the 29th. By the morning of the 30th the low had passed to eastern Nova Scotia, the high pressure area which was in the Northeast having passed to the ocean. There was also a high over Kansas, with a tongue extending eastward to the middle Atlantic States. Frosts occurred in Kansas, Iowa, Indiana, Illinois, Ohio, Wisconsin, Pennsylvania, New York, and at scattered places in the interior of the New England States, warnings of which were previously issued.

Average temperatures and departures from the normal.

Districts.	Number of stations.	Average temperatures for the current month.	Departures for the current month.	Accumulated departures since Jan. 1.	Average departures since Jan. 1.
New England	11	60.5	0.0	−12.0	−1.3
Middle Atlantic	15	68.1	+1.9	−10.8	−1.2
South Atlantic	10	76.8	+3.7	− 1.7	−0.2
Florida Peninsula [1]	9	80.9	+1.6	+ 3.6	+0.4
East Gulf	11	77.8	+3.0	− 8.1	−0.9
West Gulf	11	77.8	+2.1	−11.8	−1.3
Ohio Valley and Tennessee	14	70.8	+2.6	−18.5	−2.1
Lower Lakes	11	64.4	+1.3	−26.3	−2.9
Upper Lakes	13	60.8	+1.7	−27.0	−3.0
North Dakota [1]	8	51.6	−4.6	−16.2	−1.8
Upper Mississippi Valley	14	65.6	+0.8	−24.7	−2.7
Missouri Valley	12	62.8	−2.6	−16.5	−1.8
Northern slope	9	49.9	−7.5	−20.3	−2.3
Middle slope	6	63.4	−4.2	−21.2	−2.4
Southern slope [1]	8	73.8	−1.6	−10.7	−1.2
Southern Plateau [1]	10	67.3	−3.7	− 9.3	−1.0
Middle Plateau [1]	10	54.7	−5.7	−12.8	−1.4
Northern Plateau [1]	10	54.3	−4.8	−10.1	−1.1
North Pacific	7	58.2	+1.3	+ 8.2	+0.9
Middle Pacific	7	64.0	+0.6	− 1.5	−0.2
South Pacific	4	68.0	+0.8	+ 2.3	+0.3

[1] Regular Weather Bureau and selected cooperative stations.

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
New England	11	2.63	84	−0.50	− 1.90
Middle Atlantic	15	5.34	165	+2.10	+ 1.00
South Atlantic	11	5.47	117	+0.80	− 0.80
Florida Peninsula [1]	9	8.08	109	+0.70	+10.00
East Gulf	11	5.02	128	+1.10	+14.40
West Gulf	10	1.48	43	−2.00	− 3.50
Ohio Valley and Tennessee	14	2.77	100	0.00	+ 3.90
Lower Lakes	10	3.64	128	+0.80	+ 1.60
Upper Lakes	13	3.46	106	+0.20	− 0.30
North Dakota [1]	8	2.30	138	+0.60	+ 2.50
Upper Mississippi Valley	15	2.20	76	−0.70	− 2.00
Missouri Valley	12	3.21	118	+0.50	− 2.20
Northern slope	9	1.87	70	−0.80	− 0.20
Middle slope	6	2.33	121	+0.40	+ 0.80
Southern slope [1]	8	2.36	89	−0.30	+ 2.10
Southern Plateau [1]	9	0.33	35	−0.60	− 0.20
Middle Plateau [1]	11	0.32	35	−0.60	− 0.60
Northern Plateau [1]	10	0.96	100	0.00	+ 2.40
North Pacific	7	1.74	74	−0.60	− 1.30
Middle Pacific	7	1.97	168	+0.80	− 2.60
South Pacific	4	0.04	17	−0.20	− 0.40

[1] Regular Weather Bureau and selected cooperative stations.

Average relative humidity and departure from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	82	+ 1	Missouri Valley	79	+13
Middle Atlantic	80	+ 3	Northern slope	69	+14
South Atlantic	83	+ 3	Middle slope	66	+18
Florida Peninsula	82	+ 1	Southern slope	65	+ 2
East Gulf	82	+ 6	Southern Plateau	39	0
West Gulf	69	− 5	Middle Plateau	44	+ 6
Ohio Valley and Tennessee	76	+ 4	Northern Plateau	53	+ 1
Lower Lakes	80	+ 7	North Pacific	76	+ 4
Upper Lakes	82	+ 5	Middle Pacific	68	+ 1
North Dakota	78	+12	South Pacific	67	+ 1
Upper Mississippi Valley	76	+ 4			

Average cloudiness and departure from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England	6.3	+ 1.1	Missouri Valley	4.7	+ 0.7
Middle Atlantic	5.6	+ 1.0	Northern slope	5.8	+ 1.8
South Atlantic	6.2	+ 1.5	Middle slope	4.6	+ 1.2
Florida Peninsula	6.2	+ 0.8	Southern slope	4.0	+ 0.2
East Gulf	5.6	+ 1.0	Southern Plateau	1.8	− 0.7
West Gulf	3.5	− 0.7	Middle Plateau	3.0	+ 0.1
Ohio Valley and Tennessee	4.1	− 0.3	Northern Plateau	4.1	+ 0.5
Lower Lakes	5.7	+ 0.9	North Pacific	4.9	− 0.4
Upper Lakes	6.4	+ 1.2	Middle Pacific	3.8	+ 0.4
North Dakota	5.9	+ 1.5	South Pacific	2.6	0.0
Upper Mississippi Valley	4.8	+ 0.5			

Data, maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Buffalo, N. Y.	19	56	sw.	North Head, Wash.	1	56	se.
Detroit, Mich.	5	68	nw.	Do.	30	64	se.
Lewiston, Idaho	30	55	w.	Pensacola, Fla.	13	59	se.
Mobile, Ala.	14	52	se.	Do.	14	74	se.
Mount Tamalpais, Cal.	1	74	nw.	Point Reyes Light, Cal.	30	64	nw.
Do.	2	56	nw.	Tatoosh Island, Wash.	14	54	e.
Do.	3	54	nw.	Do.	30	60	s.
Do.	19	50	nw.				
Do.	30	72	nw.				